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ABSTRACT

The paper reviews studies showing positive and negative effects of maternal tutoring on retarded and potentially retarded infants and children. Results of one of the studies reviewed, on the effects of mother-child interaction on exploratory behavior of Down's syndrome infants (1 1/2 to 3 years of age), indicate that normal and retarded children spend more time exploring objects when the mother is interactive than when she is neutral. Results of a Project EDGE study reveal that Down's syndrome children, 2 1/2-years-old, previously tutored for 18 months, could identify more curriculum and noncurriculum objects than nontutored mongoloid children. A conclusion based on the research reviewed suggests that maternal tutoring is effective in promoting receptive language development and exploratory behavior. Negative effects considered are mother discomfort in the tutoring role and overzealousness or overstimulation, which may be deleterious to intellectual development. Cited are studies to show that quiet, intimate mother-child interactions relate positively and consistently to the child's intellectual development, that use of a training hierarchy permits a child to assert his own problem solving ability, and that arrangement of appropriate tasks and materials maximizes the child's chance for mastery. (MC)

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TWO BASIC CONSIDERATIONS IN UTILIZING MOTHERS AS TUTORS OF THEIR VERY YOUNG RETARDED OR POTENTIALLY RETARDED CHILDREN*

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1. J. Rynders. Two basic considerations in utilizing mothers as tutors of their very young retarded or potentially retarded children. Occasional Paper #12. January 1973.

2. R. Bruininks, J. Rynders, & J. Gross. Social acceptance of mildly retarded pupils in resource rooms and regular classes. Research Report #45. January 1973.

3. J. Turnure & M. Thurlow. The effects of interrogative elaborations in the learning of normal and EMR children. Research Report #44. January 1973.

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12. D. Moores. Communication - Some unanswered questions and some unquestioned answers. Occasional Paper #10. July 1972.

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14. R. Riegel. Measuring educationally handicapped children's organizational strategies by sampling overt groupings. Research Report #37. May 1972.

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16. E. Gallistel & P. Fischer. Decoding skills acquired by low readers taught in regular classrooms using clinical techniques. Research Report #35. May 1972.

17. J. Turnure & M. Thurlow. Verbal elaboration in children: Variations in procedures and design. Research Report #34. March 1972.

18. D. Krus & W. Bart. An ordering-theoretic method of multidimensional scaling of items. Research Report #33. March 1972.

19. J. Turnure & S. Larsen. Effects of various instruction and reinforcement conditions on the learning of a three-position oddity problem by nursery school children. Research Report #32. March 1972.

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21. J. Rynders & J. Horrobin. A mobile unit for delivering educational services to Down's Syndrome (Mongoloid) infants. Research Report #30. January 1972. (Presented at Council for Exceptional Children, Special National Conference, Memphis, December, 1971).

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January 1973

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RESEARCH AND DEVELOPMENT CENTER
IN EDUCATION OF HANDICAPPED CHILDREN
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The University of Minnesota Research, Development and Demonstration Center in Education of Handicapped Children has been established to concentrate on intervention strategies and materials which develop and improve language and communication skills in young handicapped children.

The long term objective of the Center is to improve the language and communication abilities of handicapped children by means of identification of linguistically and potentially linguistically handicapped children, development and evaluation of intervention strategies with young handicapped children and dissemination of findings and products of benefit to young handicapped children.

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TWO BASIC CONSIDERATIONS IN UTILIZING MOTHERS AS TUTORS OF THEIR VERY YOUNG RETARDED OR POTENTIALLY RETARDED CHILDREN*

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An infant's mother is his first and, often, most important teacher. Studies with animals by Harlow (1963) and Levine (1960) have shown that mothering, i.e., close physical contact and stimulation, is essential for adequate physiological and socio-cognitive development. The work of Scott (1962) implies that important learning, e.g., maternal imprinting, occurs in certain animals only during circumscribed periods of development.

Educational researchers concerned with the early stimulation of human infants have turned increasingly to mothers of young retarded and potentially retarded children as a resource for providing early instruction. Schaefer (1969), for example, provided cognitive stimulation to disadvantaged Negro boys from the time they were fifteen months old until they were thirty-six months of age using teachers and mothers for instructors. Mothers were encouraged to participate in the instruction as they wished, particularly in following through with the activities provided by the teachers. Mothers frequently did participate, e.g., sitting with their children, looking at pictures and talking about them, and playing reading readiness games. He felt that the mothers' participation was one of the most important aspects of his study. The effectiveness of Schaefer's program was indicated by the increased cognitive superiority of children receiving the instruction over those not participating.

Gordon (1969) trained mothers of disadvantaged infants to work with their children in activities, some of which resembled tasks from well-known infant development scales. Mothers engaged their children in simple games such as hide-and-seek and helped them to increase their postural and mobility skills. Results of Gordon's work, as reported by Meier, Segner, and Greuter (1970), indicate that children whose mothers had been

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given instruction in infant education techniques were significantly advanced in their mental development when compared with control children following one year of stimulation. These significant differences in developmental quotients, favoring experimental children, occurred for children who had been in Gordon's program from age three months to age twenty-four months, as well as for those who had participated from twelve to twenty-four months of age. Interestingly, however, children who were enrolled only from three months to twelve months of age were not significantly different from control children, suggesting that first-year gains may be lost unless the program continues.

In an early education program, Project EDGE (Expanding Developmental Growth through Education),* for Down's Syndrome (mongoloid) infants, Rynders and Horrobin (1972) trained mothers to tutor their infants in basic cognitive skills such as object classification and spatial and temporal relationships. In this program, which began when the infants were six months old, mothers were supplied with a set of simple objects chosen for specific characteristics. For example, crayons and finger paints were supplied because they leave some trace; a doll, mirror, comb, and brush were selected because of their usefulness in social play; Kitten in the Keg because it must be assembled in serial order; and clay because it has no important shape of its own but can be molded to suggest the shape of any object. Twenty such objects, along with a set of activities in which the objects could be used and a set of vocabulary words to be emphasized during the activities, were given mothers. At age three, after two and one-half years in the program, Down's Syndrome children who received this stimulation scored considerably higher on measures of intellectual and receptive language development than did children who did not receive the program.

Utilizing the studies cited as background, two basic questions regarding the utilization of a mother as a tutor for her retarded or potentially retarded child can be asked: (1) Is maternal tutoring itself a "good" idea in terms of the stimulation and reinforcement value of the mother and the tutored content? (2) What precautions should be taken in employing a mother as a tutor?

IS MATERNAL TUTORING A "GOOD" IDEA?

The answer to this question is difficult at best. On the one hand we are tempted to say, "Of course early tutoring is a good idea. Isn't this what mothers do anyway? How absurd to think that it could be otherwise." Indeed, there is some evidence that early tutoring (not all of it maternal tutoring) can produce significant and lasting gains in complex behavioral domains such as roller skating, reading, language, and the playing

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of a musical instrument (Fowler, 1962). On the other hand, there appears to be some risk that early tutoring, maternal and otherwise, could result in a premature plateauing of behavioral development which may then obstruct the development of a desired higher order of behavior (Robinson and Robinson, 1968). To further complicate the issue, it is difficult to isolate the factors in the mothering process itself which are tutorial and are crucial for the infant's development. One factor appears to be clearly important, however--the interaction of mother or mother surrogate with her child through affectionate play, verbalization, fondling, and care taking.

With respect to mothering factors, Meier, Segner, and Grueter (1970) report that visual attentiveness in infants is highly correlated with the amount of handling by the caretaking person (Brody, 1951). Similarly, additional physical handling and attention by mothering individuals facilitates the general development, particularly the alertness, of institutionalized infants (Casler, 1965; Rheingold, 1961; White, Castle, and Held, 1964). Visual scanning behavior of newborns has been directly influenced by the amount of caretaker handling (Korner and Grobstein, 1967). In this study the investigators observed that newborn children had their eyes open ninety percent of the time when being held and only twenty-five percent of the time when either left unhandled or moved to a sitting position. Extending this point, Yarrow (1963) found a significant correlation between developmental test scores of six-month-old children living in foster homes and ratings of amount and appropriateness of maternal handling.

In one of our investigations of maternal tutoring variables, Mattick (1968) studied the effects of mother-child interaction on the exploratory behavior of Down's Syndrome infants. In this experiment, groups of Down's Syndrome and normal children between one and one-half and three years of age were presented with opportunities to handle interesting objects. In one condition the children handled objects without the presence of a mother; in a second condition the mother was present with the child but non-interactive; in the third condition the mother was present and interactive, i.e., she gently helped her child manipulate materials and talked with him about them in a pleasant conversational manner. The results demonstrated that normal and retarded children spent more time exploring objects visually and/or visually-tactually when the mother was interactive than when she was neutral. The least exploration of objects occurred when the mother was absent. Two corollary measures in this study, amount of off-task behavior and visual attending to the mother, revealed that when the mother was interactive with her child, he spent less time off-task and more time exploring the objects than was the case in the condition where the mother was present but neutral. This finding held for Down's Syndrome as well as for normal children.

Considering the research reviewed to this point, it would seem to be very useful to assist mothers in focusing their young children's attention on important aspects of the environment as long as it is done in a manner that is generally enjoyable for both of them.

Another way of addressing the question, "Is maternal tutoring a good idea?" might be to ask whether tutored material becomes part of the child's receptive vocabulary at an early age. In the early education project for Down's Syndrome children, Project EDGE,

a visual-motor method (Wolf, 1972) was devised to determine whether children had assimilated content which their mothers had tutored them in for approximately eighteen months (the children were two years of age at the time of testing). The method involved a series of photos mounted on three boards. The first board contained photos of actual objects from curriculum materials that the mothers were using each day with their children. The second board contained pictures having labels similar to the curriculum objects but dissimilar in shape and color. The third board contained objects that were not in the curriculum but which are commonly found in any child's home. Down's Syndrome infants who had been receiving daily tutoring for several months were able to identify both more curriculum and non-curriculum objects than could Down's infants who had not received tutoring with the curriculum.

In summation, the research suggests that early maternal tutoring can be effective in promoting receptive language development as well as exploratory behavior. But it would be a mistake to let the issue rest without looking at some of the possible negative effects of maternal tutoring.

PRECAUTIONS IN UTILIZING A MOTHER AS HER CHILD'S TUTOR

Avoid Role Discomfort

Mothers should not be asked to tutor their children unless they wish to and feel comfortable in doing so. Mothers of the Down's Syndrome children in Project EDGE were relatively comfortable in the tutoring role, but this may not always be the case. A disadvantaged mother could have severe communication problems herself and might also be burdened with the numerous difficulties associated with an improverished environment. In such circumstances it would be unfair to ask her to assume a large tutoring role.

Avoid Over-zealousness

One has to be cautious that a mother does not become over-zealous in instructing her young child because of the possible negative effects on the child's development. Some well-meaning mothers may be so achievement-oriented that they virtually "sap" their children's energy by being overly bombastic in their tutoring. A child faced with such a situation may eventually withdraw from social interaction. As a matter of fact, there is some evidence that excessive environmental stimulation may be even more deleterious than too little stimulation. Wachs, Uzgiris, and Hunt (1967) studied the stimulation characteristics of several homes of disadvantaged infants. Results of their observations, utilizing the Caldwell Inventory of Home Stimulation, showed that two groups of items appeared to be related consistently to infant development. The first group of items measured qualities such as noise and activity level in the home and amount of interpersonal contact. These items indicated that overstimulation, at each age level, was related negatively to intellectual development in a highly consistent manner. A second group of items, appearing initially at fifteen months of age and again at eighteen and twenty-two months, centered around the amount and type of verbal interaction between mother and child. Analysis of scores on these items indicated that relatively quiet, intimate mother-child interactions were related positively to the child's intellectual development in a consistent manner.

Avoid "Over-teaching"

In Project EDGE, mothers tutoring their Down's Syndrome infants for one hour each day in a verbally-tactually interactive manner, are advised to use a "hierarchy" of instructional strategies whenever possible in mother/child problem-solving situations. That is to say, they are asked to use the most non-direct instructional techniques first--perhaps shaping, verbal guidance, or modeling--resorting to more direct strategies, such as manual guidance, only when the less direct techniques do not produce the desired behavior. This use of a training technique hierarchy permits the child to assert his own problem-solving ability to the maximum extent, thereby fostering independent problem-solving as much as possible.

Promote Task Mastery

Finally, mothers should be encouraged to work with tasks and materials that offer the greatest opportunities for comfortable mother-child communication and task mastery for the child. Simple materials, devoid of superfluous color, detail, and electrical circuitry, may hold children's interest longest, perhaps because children can easily gain competence in using them. Witness the child who receives an exotic electric toy for Christmas and, after a quick inspection, prefers to play with the box the toy came in. Relative to this point, White (1964) presents convincing documentation that gaining competence in dealing with the environment provides a child with an exceedingly rich source of reinforcement. He writes:

> Being interested in the environment implies having some kind of satisfactory interaction with it. Several workers call attention to the possibility that satisfaction might lie in having an effect upon the environment, in dealing with it, and changing it in various ways. Groos (1901), in his classical analysis of play, attached great importance to the child's "joy in being a cause," as shown in making a clatter, "hustling things about," and playing in puddles where large and dramatic effects can be produced. "We demand a knowledge of effects," he wrote, "and to be ourselves the producers of effects." (p. 180)

An important aspect of maternal instruction, therefore, should be that of arranging tasks so that they maximize the child's chance for mastery.

The intent of this paper has been to explore the positive potentialities of maternal tutoring and to point out some of its possible difficulties. As educators, we cannot afford to overlook the instructional importance of the infant's teacher, his mother, nor can we afford to use this immeasurably valuable instructional resource unwisely.

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